

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

X-9330

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)  
**09/719566**

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/CA99/00598	30/06/1999	30/06/1998

TITLE OF INVENTION  
CO-OPERATIVE ADVANCE WARNING SYSTEM FOR ROAD HAZARDSAPPLICANT(S) FOR DO/EO/US  
ROWLEDGE, DARREL

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1.  This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2.  This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3.  This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4.  The US has been elected by the expiration of 19 months from the priority date (Article 31).
5.  A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a.  is attached hereto (required only if not communicated by the International Bureau).
  - b.  has been communicated by the International Bureau.
  - c.  is not required, as the application was filed in the United States Receiving Office (RO/US).
6.  An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a.  is attached hereto.
  - b.  has been previously submitted under 35 U.S.C. 154(d)(4).
7.  Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a.  are attached hereto (required only if not communicated by the International Bureau).
  - b.  have been communicated by the International Bureau.
  - c.  have not been made; however, the time limit for making such amendments has NOT expired.
  - d.  have not been made and will not be made.
8.  An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9.  An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10.  An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11 to 20 below concern document(s) or information included:**

11.  An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12.  An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13.  A **FIRST** preliminary amendment.
14.  A **SECOND** or **SUBSEQUENT** preliminary amendment.
15.  A substitute specification.
16.  A change of power of attorney and/or address letter.
17.  A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18.  A second copy of the published international application under 35 U.S.C. 154(d)(4).
19.  A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20.  Other items or information:

21.  The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):**

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1000.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... \$860.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$710.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$690.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

\$ 1000.00

Surcharge of \$130.00 for furnishing the oath or declaration later than  20  30 months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 130.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	17 - 20 =	0	x \$18.00	\$ 0.00
Independent claims	2 - 3 =	0	x \$80.00	\$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)	0	+ \$270.00	\$ 1130.00	

**TOTAL OF ABOVE CALCULATIONS =** \$ 565.00

Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.

+ \$ 565.00

**SUBTOTAL =** \$ 565.00

Processing fee of \$130.00 for furnishing the English translation later than  20  30 months from the earliest claimed priority date (37 CFR 1.492(f)).

\$ 0.00

**TOTAL NATIONAL FEE =** \$ 565.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

**TOTAL FEES ENCLOSED =** \$ 565.00

Amount to be refunded: \$

charged: \$

- A check in the amount of \$ 565.00 to cover the above fees is enclosed.
- Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.
- The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 07-1340. A duplicate copy of this sheet is enclosed.
- Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

John S. Hale  
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SIGNATURE

John S. Hale

NAME

25,209

REGISTRATION NUMBER

09/71956

528 Rec'd PCT/PTO 29 DEC 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re US National Phase Patent Application of :  
ROWLEDGE, DARREL :  
International Application No.: PCT/CA99/00598 : Box PCT  
International Application Date: June 30, 1999 :  
For: CO-OPERATIVE ADVANCE :  
WARNING SYSTEM FOR ROAD :  
HAZARDS :  
:

The Honorable Assistant Commissioner  
for Patents  
Box PCT  
Washington, D.C. 20231

Sir:

**PRELIMINARY AMENDMENT**

Preliminary to acceptance and examination of the subject case, please amend the above-identified application as follows:

**IN THE CLAIMS:**

Claim 3, line 1, change "claims" to -claim- and delete "or 2".

Claim 4, line 1, change "claims" to -claim- and delete "or 2".

Claim 5, line 1, change "claims" to -claim- and delete "2, 3, or 4".

Claim 6, line 1, change "claims" to -claim- and delete ", 2, 3, 4, or 5".

Claim 7, line 1, change "claims" to -claim- and delete ", 2, 3, 4, 5, or 6".

Claim 10, line 1, change "claims" to -claim- and delete "and 9".

Claim 11, line 1, change "claims" to -claim- and delete ", 9 or 10".

Claim 13, line 1, change "claims" to -claim- and delete "or 12".

Claim 14, line 1, change "claims" to -claim- and delete "or 13".

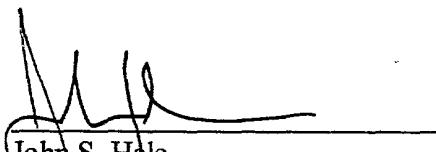
Claim 17, line 1, change "claims" to -claim- and delete "or 16".

**REMARKS**

The above amendments have been made to eliminate multiple dependent claims and to present the application in condition for filing and examination.

Respectfully submitted,

GIPPLE & HALE



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or accepted, safe and reliable method or device to allow them to communicate an advance warning to approaching vehicles.

While flashing one's headlights could be interpreted as such a warning, it is cumbersome and generally not understood as a signal connoting impending danger. Plus, one would have to repeatedly flash the vehicle headlights for each oncoming vehicle or group of vehicles. In addition, such practice is not advisable at night since either human or mechanical failure to get the lights back on presents a significant danger in itself. An additional problem with head light flashing, is that the driver of the oncoming vehicle has no way of knowing the distance to the upcoming, unexpected road hazard. This may result in the driver relaxing and speeding up just before coming upon the hazard.

Similarly, four-way flashers, which flash signal lights at all four corners of the vehicle simultaneously, indicate that the flashing vehicle is, itself, the hazard. Turn signals indicate turns. Even hand signals are of little value.

## 20 SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a cooperative advance warning system for road hazards that will enable drivers to warn oncoming traffic of unusual and unexpected hazards which obviates and mitigates from the disadvantages of the prior methods.

A further object of the present invention is to provide a cooperative advance warning system for road hazards which is easy and convenient to

initiate and requires little effort or distraction of the driver and which delivers an advance warning to oncoming drivers that is clear, obvious, unmistakable and which will not be confused with any other signal.

5 It is a further object of a preferred embodiment of the present invention to provide a cooperative advance warning system for road hazards that can be used to warn oncoming drivers of upcoming, unexpected road hazards and indicate to them whether the hazard is relatively near or far.

10 According to the present invention, there is provided a cooperative advance warning system for use on a vehicle to warn drivers of oncoming vehicles of an upcoming, unexpected road hazard comprising: a lamp mounted on the vehicle in a location where light emitted by the lamp is visible to drivers of the oncoming vehicles; a switch means connected to the lamp for activating and deactivating the lamp, the switch means mounted to the vehicle in a location that is easily accessible to the driver of the vehicle; and an electronic control means connected to the lamp for controlling the characteristics of the light emitted by the lamp.

20 According to another aspect of the present invention, there is provided a portable cooperative advance warning system for use in warning drivers of oncoming vehicles of an upcoming, unexpected road hazard comprising: a housing; a lamp mounted to the housing; a switch means mounted on the housing and connected to the lamp for activating and deactivating the lamp; an electronic control means mounted to the housing and connected to the lamp for controlling the characteristics of the light emitted by the lamp; and a power supply for providing power to the system.

5

The present invention advantageously provides a cooperative advance warning system for road hazards which is inexpensive and easy to use. A further advantage is that it can be easily adapted to and installed on any vehicle, new or old. Another advantage is that the present system avoids confusing drivers of oncoming vehicles by providing a warning which is specific to an upcoming, unexpected road hazard. Yet another advantage is that the present system is easy and convenient to initiate, takes little effort and causes little distraction to the driver. Additionally, an important advantage of a preferred embodiment of the present invention is that it can indicate to drivers of oncoming vehicles whether the road hazard is near or far.

10

Other advantages, objects and features of the present invention will be readily apparent to those skilled in the art from a review of the following detailed descriptions of a preferred embodiment in conjunction with the accompanying drawings and claims.

15

#### BRIEF DESCRIPTION OF THE DRAWINGS

20

Preferred embodiments of the present invention will now be described in greater detail, and will be better understood when read in conjunction with the following drawings, in which:

25

Figure 1, is a schematic representation of a typical application of the present invention to warn drivers of oncoming vehicles of an upcoming, unexpected road hazard.

Figure 2, is a schematic, partially sectional, plan view of the front portion of a vehicle on which the present invention has been installed.

Figure 3, is a front perspective view of the vehicle shown in Figure 2.

Figure 4. is a schematic, partially sectional plan view of the entire vehicle shown in Figure 2.

5

Figure 5, is a perspective view of a portable version of the present invention.

10 Figure 6, is a schematic, partially sectional plan view of an alternative embodiment of the present invention installed on a vehicle.

Similar references are used in different figures to denote similar components.

## 15 DETAILED DESCRIPTION OF THE INVENTION

Figure 1 is a schematic representation of a typical application of the present invention. The cooperative advance warning system for road hazards 10 is shown installed on a vehicle 12. An oncoming vehicle 20 is shown approaching vehicle 12 and a road hazard 30 (in this case, a fallen tree) is shown partially blocking the driving lane of oncoming vehicle 20. In Figure 1, the driver of vehicle 12 sees road hazard 30 and activates cooperative advance warning system 10 which emits a light beam 16 that is clearly visible to the driver of oncoming vehicle 20. The driver of oncoming vehicle 20 is thus warned of upcoming, unexpected road hazard 30 and is provided with plenty of time to slow down and avoid the hazard.

Referring to Figures 2 and 4, cooperative advance warning system 10 comprises a lamp 15, one side of which is connected by electrically conductive wire 18, to an electronic control unit 13 and to one side of switch 19. The other side of switch 19 is connected to the positive side of the vehicle battery or power supply while the other side of lamp 15 is connected to the common vehicle ground. Activating switch 19 completes the circuit and causes lamp 15 to emit a beam of light 16 (see Figure 1) out of the front of vehicle 12. This light beam is clearly visible to the driver of oncoming vehicle 20, thus providing a warning to that driver of an upcoming, unexpected road hazard 30.

An in-use indicator light (not shown), easily visible to the driver of vehicle 12, is connected to switch 19 and electronic control unit 13 to inform the driver when the system is operating.

In a preferred embodiment of the present invention, electronic control unit 13 is designed to cause lamp 15 to emit light in various patterns following initial activation. For example, lamp 15 can be caused to automatically deactivate after a predetermine length of time. Lamp 15 may also be caused to continuously flash on and off for a predetermine length of time to provide a more visible warning signal. In another example, the frequency of the on and off flashes of lamp 15 can be reduced over time, so that initially lamp 15 flashes rapidly to indicate that the road hazard is near and as the time interval from initial activation increases, the frequency of the flashes is decreased until lamp 15 is completely deactivated. In this example, there is an inverse proportional relationship between the frequency of the flashes and the time interval since activation. In a further example, the cadence of the flashes can be altered to correspond to the distance from the road hazard. Rapid single flashes could indicate imminent danger, while lower frequency double flashes could be used to indicate a more distance hazard, and still lower frequency

triple flashes could signify a far off problem. In yet another example, the frequency or cadence of the flashing light can be selected and maintained at a given value to permit a parked vehicle to be used to continuously warn oncoming traffic of an impending hazard. In this example, lamp 15 will remain 5 flashing at the selected frequency or cadence until deactivated by the operator.

Referring to Figure 6, in yet another preferred embodiment of the present invention there is provided a connection 18 between electronic control unit 13 and the centre high-mounted brake light 14, and/or the rear tail-mounted brake lights 21 of the vehicle, and/or a separate rear-facing warning light 22. Upon activation of the system, the centre high-mounted brake light 14 and/or rear tail-mounted brake lights 21 of the vehicle, and/or the separate rear-facing warning light 22, are caused to flash rapidly on and off in conjunction with lamp 15 for a brief period of perhaps 10 seconds. This acts 10 as an immediate warning to any vehicle travelling behind vehicle 12 to be on the lookout for a road hazard.

In a further variation of this preferred embodiment of the present invention, switch 19 is provided with an alternative position called the urban or immediate mode. When the system is switched into or held in this urban or 20 immediate mode, control unit 13 causes lamp 15, the centre high-mounted brake light 14, and/or the rear tail-mounted brake lights 21, and/or a separate rear-facing warning light 22, to rapidly flash on and off for as long as switch 19 remains in the urban or immediate position.

Urban or immediate mode can be used to warn vehicles approaching 25 from both directions of an immediate hazard, such as a pedestrian crossing the street, but is especially effective in warning vehicles approaching from the rear

since in many cases, the approaching driver's view of pedestrians and the like is obscured by the lead vehicle. Streets with turn lanes, or having multiple lanes of traffic, present serious dangers to pedestrians attempting to cross such streets, even when attempting to do so at specially designated pedestrian

5 corridors, since many of these corridors are not equipped with overhead warning lights. Vehicles stopping to allow pedestrians to cross in front often obscure the view for other approaching vehicles, especially those approaching from behind. Further, the driver of an approaching vehicle may assume that the stopped vehicle is itself the only hazard (perhaps the stopped vehicle is

10 intending to turn without having signalled, or is allowing passengers to disembark, or perhaps has mechanical problems). Such assumption, in conjunction with the obstructed view of the pedestrians, can put the

15 pedestrians in serious danger of being struck once they enter the adjacent lanes of traffic. The driver of the stopped vehicle currently has no way of warning other approaching vehicles that a pedestrian is crossing. The present invention, when used in the above-described urban or immediate mode can warn traffic approaching from both directions of the presence of a pedestrian or other hazard. Urban or immediate mode could also be used to warn traffic

20 approaching from the rear of other hazards such as pets crossing, dangerous breaks in the road, lost loads, or other obstructions.

Figure 3 provides an example of a typical location for installation of cooperative advance warning system 10. Lamp 15 is shown to be installed on the front of vehicle 12, between and in-line with the two front head lights.

25 However, it will be readily understood by those skilled in the field that lamp 15 can be placed in any location where its light would be plainly visible to drivers of oncoming vehicles.

With reference to Figures 1 to 4, the operation of the present invention will now be described in more detail. The cooperative advance warning system **10** is designed to provide all drivers of oncoming vehicles with advance warning of upcoming, unexpected road hazards. As vehicle **12** passes 5 unexpected, road hazard **30**, the driver of vehicle **12** will activate the cooperative advance warning system **10** using switch **19**. Lamp **15** will thus be activated and emit a beam of light **16** to warn the driver of oncoming vehicle **20** of the upcoming, unexpected road hazard **30**. This provides the 10 driver of vehicle **20** sufficient time to slow down and avoid the hazard. Once vehicle **20** has confirmed the presence of road hazard **30**, the driver of vehicle **20**, when it is safe to do so, activates the cooperative advance warning system 15 on his or her vehicle to warn drivers of vehicles approaching from the opposite direction. In this fashion, almost all drivers approaching unexpected road hazard **30** can be given ample warning to permit them to avoid the danger, thereby significantly reducing the probability of accident..

To use the urban or immediate mode of a preferred embodiment of the present invention as described above, the vehicle operator, upon encountering or stopping to permit a pedestrian to cross the street or encountering or 20 stopping to avoid a road hazard, manually places switch **19** into urban or immediate mode. This causes the centre high-mounted brake light **14**, and/or the rear tail-mounted brake lights **21**, and/or a separate rear-facing warning light **22** to flash on and off rapidly in conjunction with lamp **15**, thereby 25 warning all approaching vehicles of the presence of a pedestrian or other road hazard.

Light beam **16** emitted by lamp **15** can be of any highly visible and distinctive colour, however, the applicant has found the colours fuchsia and

pink to be most effective. The colour is selected to not only be visible in both daylight and at night, but also to distinguish from all other lights common on vehicles and in traffic. It is the applicant's expectation that all drivers, once they become knowledgeable of the present invention, will immediately learn to recognize and associate the colour and cadence of light emitted by lamp 15, and the cadence and flashing of the centre high-mounted brake light 14, and/or the rear tail-mounted brake lights 21, and/or a separate rear-facing warning light 22, with an upcoming, unexpected road hazard.

As indicated above, lamp 15 can be made to flash at different frequencies and with differing cadence depending on the time interval since activation. This will indicate to the driver of oncoming vehicle 20 that road hazard 30 is either relatively near or far.

The present cooperative advance warning system may also be provided in a self-contained, stand-alone portable unit such as that shown in Figure 5. The portable cooperative advance warning system 110, as shown in Figure 5, has a housing 112 to which is mounted a lamp 115, a switch 119, an in-use indicator light 117 and a handle 118 for transporting the unit. Lamp 115, switch 119 and in-use indicator light 117 are connected to a power supply (not shown) and an electronic control unit (not shown) contained within housing 112. All of the components of the portable system 110 shown in Figure 5 are identical and perform the same functions as the corresponding components of the cooperative advanced warning system 10, described above and shown in Figures 1 to 4.

One further advantage of the portable cooperative advance warning system 110 herein described is that multiple units can be set up to warn traffic

approaching a road hazard from both directions. The units can be set to maintain a pre-determined frequency or cadence corresponding to their distance from the road hazard. Unlike flares which burn out and are generally associated with the direct site of a hazard, the portable cooperative advance warning system **110** can be used to provide considerable advance warning of an upcoming road hazard for extended periods of time.

The above-described embodiments of the present invention are meant to be illustrative of a preferred embodiment of the present invention and are not intended to limit the scope of the present invention. Various modifications, variations and adaptations, which would be readily apparent to one skilled in the art, are intended to be within the scope of the present invention. The only limitations to the scope of the present invention are set out in the following appended claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A cooperative advance warning system for use on a vehicle to warn

5 drivers of oncoming vehicles of an upcoming, unexpected road hazard comprising:

a lamp mounted on the vehicle in a location where light emitted by the lamp is visible to drivers of the oncoming vehicles;

10 a switch means connected to the lamp for activating and deactivating the lamp, the switch means mounted to the vehicle in a location that is easily accessible to the driver of the vehicle; and

an electronic control means connected to the lamp for controlling the characteristics of the light emitted by the lamp.

15 2. A cooperative advance warning system according to claim 1, wherein the electronic control means comprises means to automatically deactivate the lamp after a pre-determined period of time following activation.

20 3. A cooperative advance warning system according to claim 2, wherein the electronic control means comprises means to cause the lamp to flash on and off at a pre-determined frequency.

25 4. A cooperative advance warning system according to claim 3, wherein the pre-determined frequency varies depending on the length of time the lamp has been activated.

5. A cooperative advance warning system according to claim 4, wherein the pre-determined frequency is inversely proportional to the length of time the lamp has been activated.

6. A cooperative advance warning system according to claims 3, 4 or 5, wherein the pre-determined frequency comprises a cadence.
7. A cooperative advance warning system according to claims 3, 4, 5 or 6, wherein the electronic control means further comprises means to maintain the pre-determined frequency or cadence at a particular value for an indefinite period.
8. A cooperative advance warning system according to claims 1, 2, 3, 4, 5, 6 or 7, further comprising an in-use indicator light connected to the switch means and to the electronic control means for indicating to the driver of the vehicle when the cooperative advance warning system is operating.
9. A cooperative advance warning system according to claims 1, 2, 3, 4, 5, 6, 7 or 8, wherein the colour of light emitted by the lamp is selected from the group of colours consisting of fuchsia and pink.
10. A portable cooperative advance warning system for use in warning drivers of oncoming vehicles of an upcoming, unexpected road hazard comprising:
  - a housing;
  - a lamp mounted to the housing;
  - a switch means mounted on the housing and connected to the lamp for activating and deactivating the lamp;
- 15 an electronic control means mounted to the housing and connected to the lamp for controlling the characteristics of the light emitted by the lamp; and
- 20 a power supply for providing power to the system.

11. A portable cooperative advance warning system according to claim 10, wherein the electronic control means comprises means to cause the lamp to flash on and off at a pre-determined frequency.

5 12. A portable cooperative advance warning system according to claim 11, wherein the pre-determined frequency can be varied depending on the distance from the road hazard.

10 13. A portable cooperative advance warning system according to claims 11 or 12, wherein the pre-determined frequency comprises a cadence.

15 14. A portable cooperative advance warning system according to claims 10, 11, 12 or 13, further comprising an in-use indicator light connected to the switch means and to the electronic control means for indicating when the cooperative advance warning system is operating.

20 15. A portable cooperative advance warning system according to claims 10, 11, 12, 13 or 14 wherein the colour of light emitted by the lamp is selected from the group of colours consisting of fuchsia and pink.

25 16. A cooperative advance warning system according to claim 1, further comprising:

a connection between the electronic control means and the vehicle brake lights; and

means contained within the electronic control means to flash the vehicle brake lights on and off at a high frequency upon activation of the advance warning system.

17. A cooperative advance warning system according to claim 1 or 16 further comprising:

a rear-facing warning light mounted on the rear of the vehicle;

5 a connection between the electronic control means and the rear-facing warning light; and

means contained within the electronic control means to flash the rear-facing warning light on and off at a high frequency upon activation of the advance warning system.

10 18. A cooperative advance warning system according to claim 16, wherein the vehicle brake lights remain flashing on and off only for a pre-determined period of time following activation of the advance warning system

15 19. A cooperative advance warning system according to claim 1 and 17, wherein the rear-facing warning light remains flashing on and off only for a pre-determined period of time following activation of the advance warning system

20 20. A cooperative advance warning system according to claim 1, further comprising:

a connection between the electronic control means and the vehicle brake lights; and

25 means contained within the electronic control means to flash the vehicle brake lights and the lamp on and off at a high frequency upon activation of the advance warning system,

wherein the switch has a first mode for activating and deactivating the lamp, and a second mode for activating and deactivating both the lamp and the brake lights.

21. A cooperative advance warning system according to claim 1 or 20 further comprising:

a rear-facing warning light mounted on the rear of the vehicle;  
a connection between the electronic control means and the rear-facing  
warning light; and  
means contained within the electronic control means to flash the rear-facing  
warning light on and off at a high frequency upon activation of the  
advance warning system.

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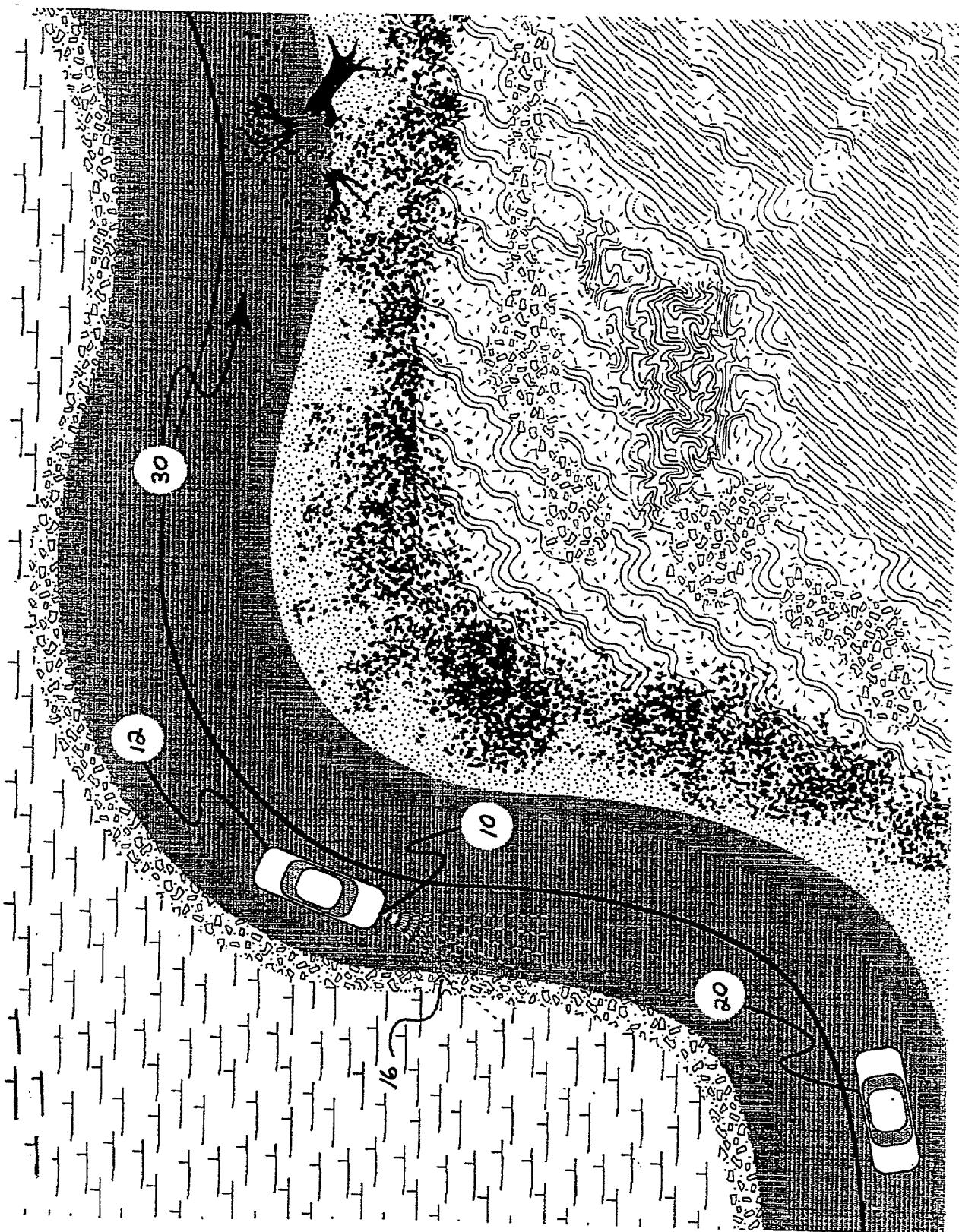


FIGURE 1  
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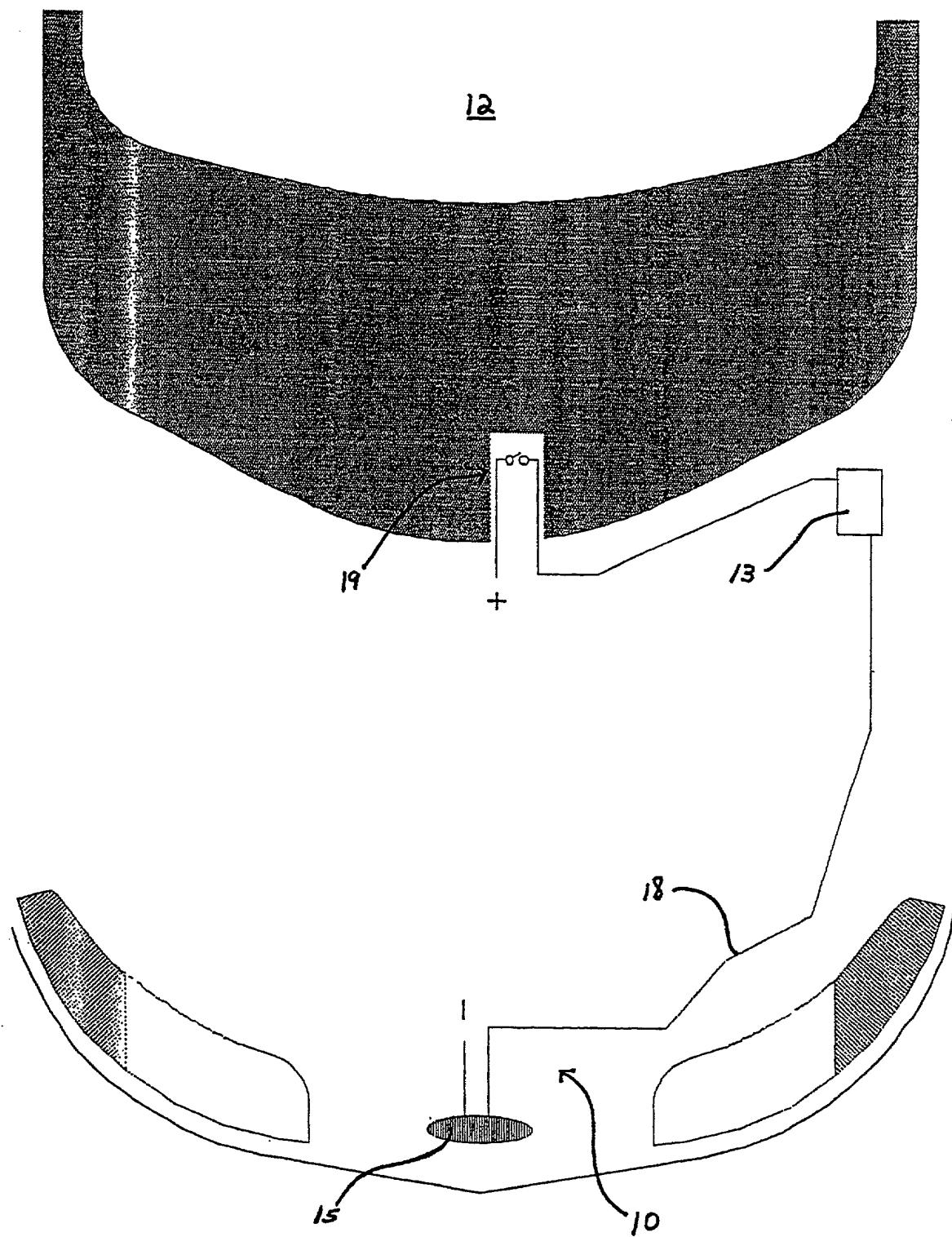


FIGURE 2  
2/6

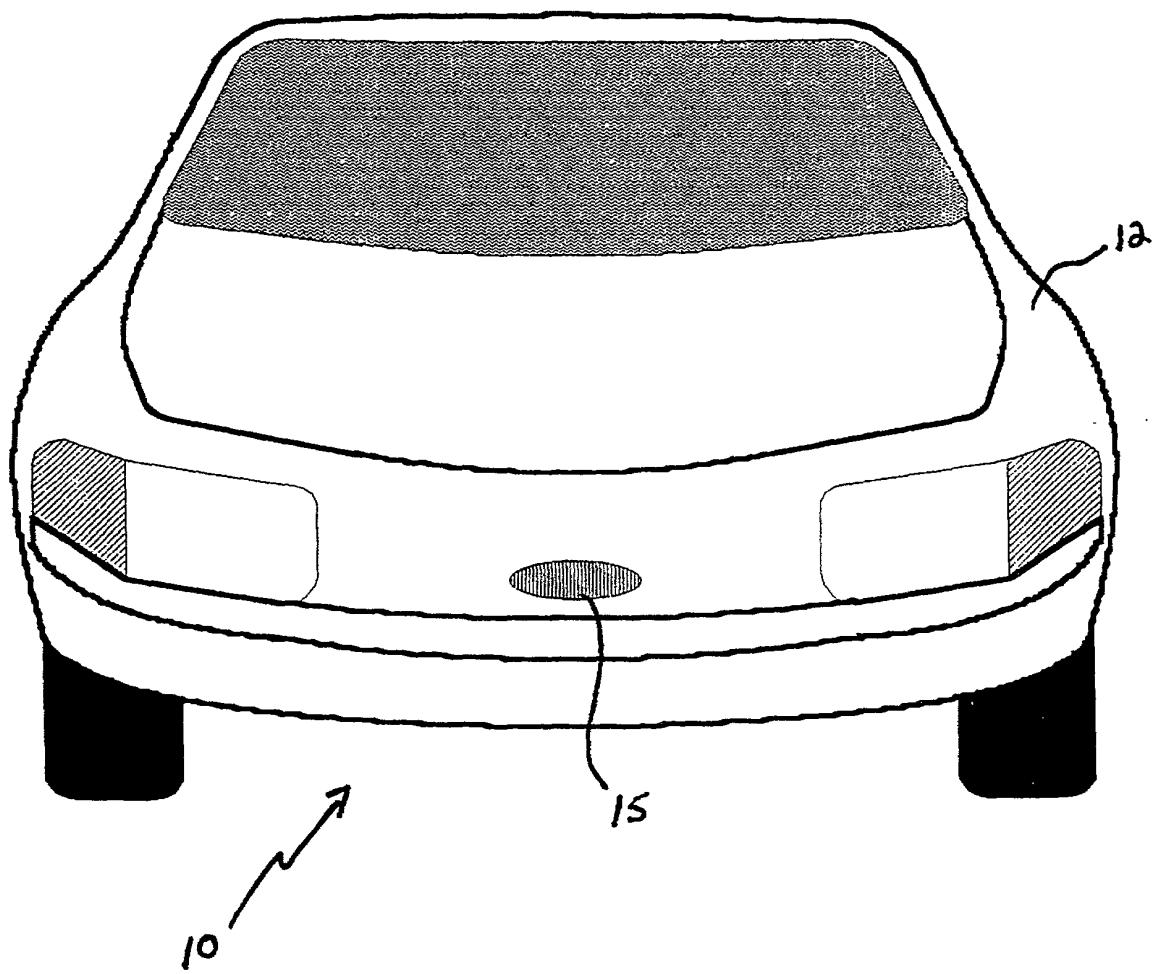
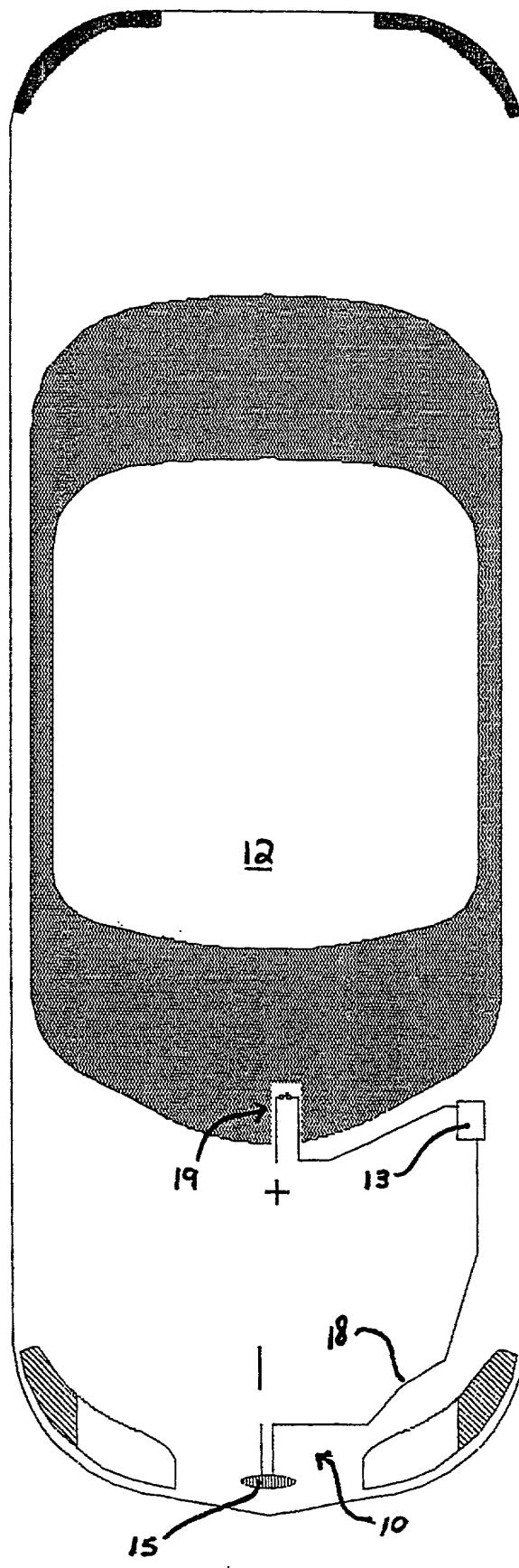


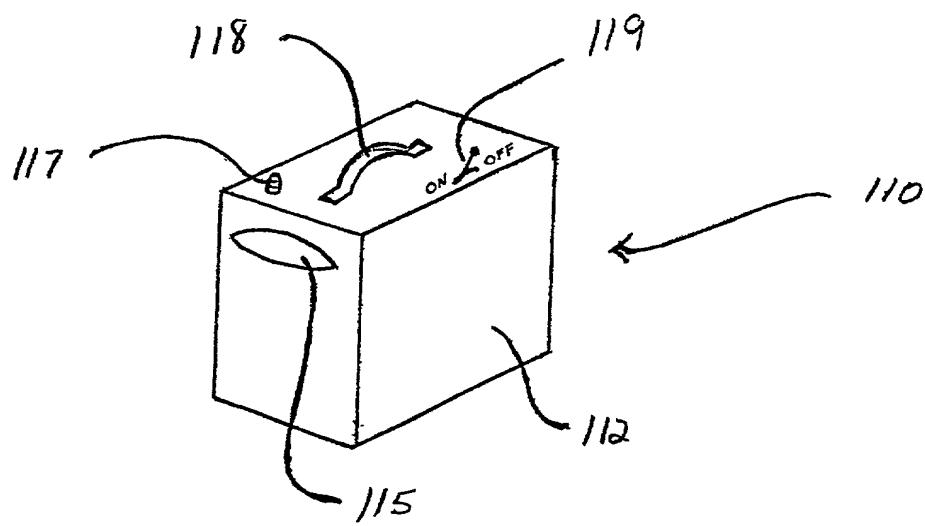
FIGURE 3  
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FIGURE 4  
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**FIGURE 5**  
5/6

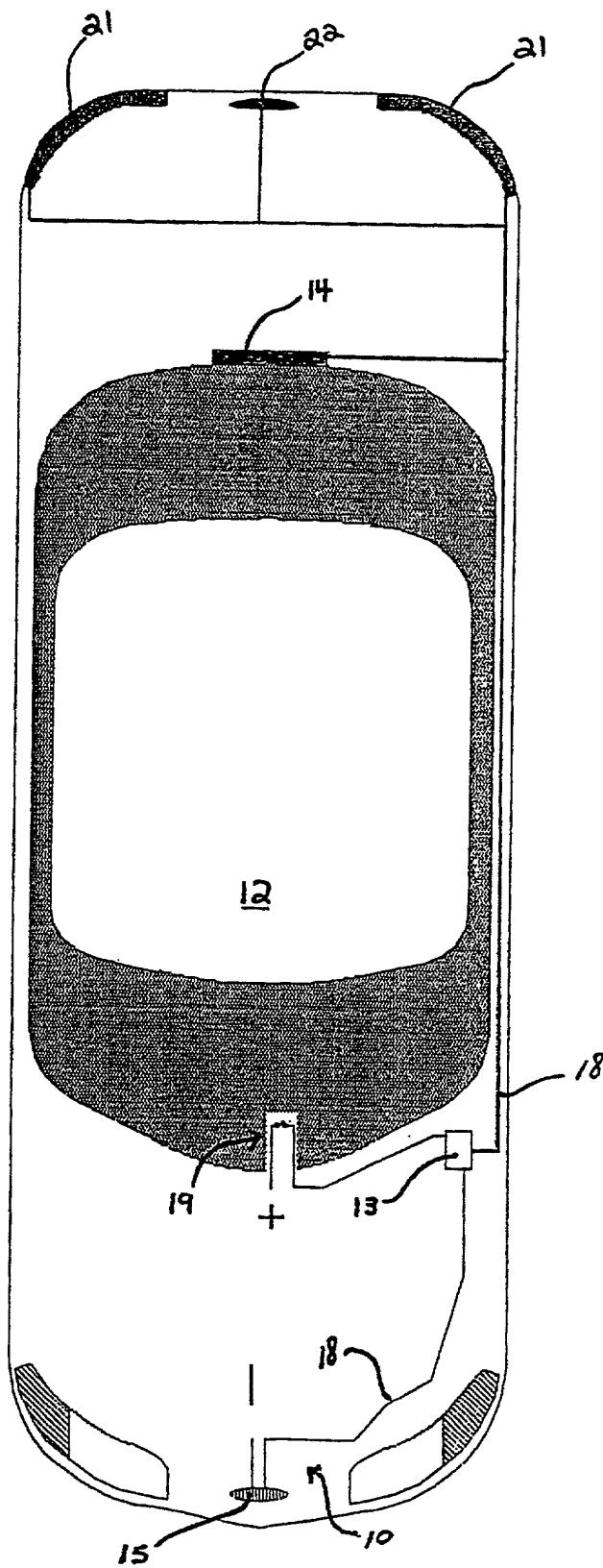


FIGURE 6  
6/6

Please type a plus sign (+) inside this box →

PTO/SB/01 (10-00)

Approved for use through 10/31/2002. OMB 0651-0032  
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

## DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

Declaration Submitted with Initial Filing       Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)  
OR

Attorney Docket Number	X-9330
First Named Inventor	ROWLEDGE, DARREL
COMPLETE IF KNOWN	
Application Number	/
Filing Date	
Group Art Unit	
Examiner Name	

As a below named Inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

### CO-OPERATIVE ADVANCE WARNING SYSTEM FOR ROAD HAZARDS

the specification of which

(Title of the Invention)

is attached hereto

OR

was filed on (MM/DD/YYYY)  as United States Application Number or PCT International

Application Number  and was amended on (MM/DD/YYYY)  (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(e)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	Certified Copy Attached? NO
2,242,023	Canada	06/30/1998	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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PTO/SB/01 (10-00)

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## DECLARATION — Utility or Design Patent Application

Direct all correspondence to:  Customer Number  
or Bar Code Label  Correspondence address below

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:  A petition has been filed for this unsigned Inventor

Given Name (first and middle [if any]) DARREL Family Name or Surname ROWLEDGE

Inventor's Signature   Date Jan 15/01

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NAME OF SECOND INVENTOR:  A petition has been filed for this unsigned Inventor

Given Name (first and middle [if any]) Family Name or Surname

Inventor's Signature Date

Residence: City State Country Citizenship

Mailing Address

Mailing Address

City State ZIP Country

Additional inventors are being named on the \_\_\_\_\_ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.